

**METHODS AND APPARATUS FOR THE  
OPTIMIZATION OF PHOTO RESIST ETCHING  
IN A PLASMA PROCESSING SYSTEM**

**ABSTRACT**

In a plasma processing system, a method of minimizing the differences in an etch rate of a photo resist material in different regions of a substrate is disclosed. The method includes introducing the substrate having in sequential order thereon, an underlying layer and the photo-resist layer. The method also includes flowing the etchant gas mixture into a plasma reactor of the plasma processing system, the etchant gas mixture comprising a flow of a fluorine containing gas between about 0.1% and about 10% of the etchant gas mixture. The method further includes striking a plasma from the gas mixture; etching the photo-resist layer with the plasma; and, removing the substrate from the plasma reactor.